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The Examiner rejects Claim 3 under 35 U.S.C. §112, second paragraph. Applicants agree with the Examiner's interpretation with respect to the meaning of component b to the extent that such component b contains at least some of b1, b2 and b3. Thus, the limitation of component b2 has been amended.

The Examiner rejects claims 1 and 5-7 under 35 U.S.C. §102(e) as being anticipated by *Kennedy*, U.S. Patent No. 6,050,208.

Rejection of a claim under 35 U.S.C. §102 requires that each and every limitation of the claim be disclosed in the cited reference, if even a single limitation is not found in the cited reference then the rejection of the claim under 35 U.S.C. §102 is improper and must be withdrawn.

Independent Claim 1 now requires that the compact polyisocyanate polyaddition product, layer (ii), comprise "the reaction product of (a) a mixture of at least one polyphenylpolymethylene polyisocyanate and at least one isomer of diphenylmethane diisocyanate with (b) a mixture of polyether polyalcohols, preferably comprising (as recited in claim 2) from 40 to 99% by weight of polyether polyalcohol having a mean functionality of from 1.5 to 2.99 and a mean molecular weight of from 400 to 8000 and from 1 to 60% by weight of a polyether polyalcohol having a mean functionality of from 3 to 5 and a mean molecular weight of from 150 to 8000". The only disclosure in *Kennedy* of the elastomer components is found in column 4, lines 39-41. In this section, *Kennedy* states, "[T]he elastomer therefore essentially comprises a polyol (e.g. polyester or polyether) together with an isocyanate or a di-isocyanate, a chain extender and a filler". Nowhere else in *Kennedy* is the composition of the elastomer discussed. Thus, because Claim 1 includes

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limitations not found in *Kennedy* the rejection of Claim 1, and Claims 5-7 which depend therefrom, under 35 U.S.C. §102 based on *Kennedy* is improper and must be withdrawn.

The Examiner rejected Claim 4 under 35 U.S.C. §103 (a) as being unpatentable over *Kennedy*. The Examiner admits that *Kennedy* fails to teach the requirement of fillers in the range specified in Claim 4. The Examiner takes the position that it would have been obvious to include fillers in any amount necessary to reduce the thermal coefficient and the cost of the elastomer layer. As discussed above the respect to Claim 1, *Kennedy* fails to disclose the subject matter of Claim 1, specifically the particular isocyanate mixture and a polyalcohol mixture utilized in preparing the elastomer of the present invention. Furthermore, *Kennedy* provides no teaching that would lead one of ordinary skill in the art to utilize filler in an amount of from 10 to 70% by weight as required by Claim 4 of the present application. *Kennedy* merely states that the filler is provided as necessary to reduce the thermal coefficient of the intermediate layer, reduce its cost, and otherwise control the physical properties of the elastomer. *Kennedy* provides no direction for what level of filler would provide these benefits. Therefore, Applicants respectfully submit that the subject matter of Claim 4 is not obvious in view of *Kennedy*.

The Examiner rejected Claims 2-3 under 35 U.S.C. §103 (a) as being unpatentable over *Kennedy* in view of *Cline, et al.*, U.S. Patent No. 5,733,966.

As discussed above with respect to Claim 1, and as the Examiner admits, *Kennedy* provides no disclosure of the composition of polyether polyols to be used in forming an elastomeric layer. The Examiner correctly states that *Cline* teaches formation of polyurethane adhesives. The Examiner believes that polyurethane adhesives can be considered equivalent to the elastomer

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required in the present invention. It is well known in the polyurethane art, however, that polyurethane adhesives are completely different from a polyurethane elastomer. Applicants respectfully submit that the teachings regarding a polyurethane adhesive are not applicable to formation of a polyurethane elastomer. Elastomers are generally utilized as very thin coatings on substrates. A review of *Cline et al*, for example, shows that the thickest layer utilized in the examples is 1/8" in thickness. Claim 1 requires that the elastomeric layer be from 10 mm to 100mm in thickness which is a range of from 3/8" to 4" in thickness. It simply is not conceivable that one would apply between a 3/8" and 4" thick layer of an adhesive between two substrates. Therefore, one of ordinary skill in the art would not be lead to look toward the adhesive art for examples of polyols used in adhesives and then take some of the teachings of the adhesive art and attempt to apply them in the formation of an elastomer.

As a second matter, *Cline et al* teaches that the invention requires a polyisocyanate with a functionality of less than about 4 and a polyol blend comprising about 90 to 100% polyethers with molecular weights from about 1,800 to 12,000 and an average functionality of from about 1.5 to about 4 and up to about 10% of chain extenders with molecular weights from about 60 to 400, and average functionality from about 1.5 to about 3. This polyol composition is unlike that required by Claims 2 and 3 of the present invention. Claim 2 requires that the polyol mixture comprised from 40 to 99% by weight of a polyether polyol having a functionality of from 1.5 to 2.99 and a mean molecular weight of from 400 to 8,000. Claim 2 further requires the polyol component comprise 1 to 60% by weight of a polyether polyol having a functionality of from 3 to 5 and a mean molecular weight of from 150 to 8,000. The Examiner suggests that Example 2 of *Cline et al*, teaches the

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polyol blend now required by Claim 1. As discussed above, however, *Kennedy* in combination with *Cline et al* fails to teach or make obvious the present Claim 1.

The Examiner also points to column 6, lines 7-22, as teaching the possibility of using 1,10-decanediol as teaching component b3 of Claim 3. While this component may qualify as the very lowest component fitting the definition of b3, *Cline et al* also teaches that no more than 10% of this component can be utilized in the polyol mixture. Claim 3 requires that component b3 be present in an amount of from 1 to 50% by weight and that the hydrocarbon skeleton contain from 10 to 40 carbons and have a functionality of from 2 to 4. This sort of component is not taught by *Cline et al* given the virtually nonexistent disclosure of *Kennedy* with respect to the components of the elastomer that *Kennedy* believed was useful with his invention. Applicants respectfully submit that neither Claims 2 nor 3 are obvious in view of the combination of *Cline et al* and *Kennedy* for the reasons given above and respectfully requests the withdrawal of the rejection of these claims under 35 U.S.C. §103 based on *Kennedy* and *Cline et al*.

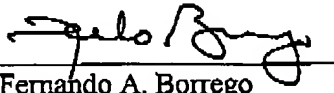
The Examiner provisionally rejected Claims 5-7 as claiming the same invention as that of Claims 1, 5 and 6 of co-pending application no. 09/701,905. The Examiner further rejected Claims 1-4 provisionally under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-4 of co-pending application no. 09/701,905. Applicants respectfully submit that given the amendments to Claims 1, 3 and 5 by the present response that these provisional rejections should be withdrawn.

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Applicants' attorney respectfully submits that the claims as amended are now in condition for allowance and respectfully requests such allowance.

Respectfully submitted,

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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the attached correspondence is being sent via facsimile to the United States Patent and Trademark Office to fax number (703) 872-9310 on August 22, 2002.


Fernando A. Borrego

APPENDIX A

1. (Twice Amended) A composite element having the following layer structure:

- (iv) 2-20 mm of metal,
- (v) 10-100 mm of compact polyisocyanate polyaddition products comprising the [reactive] reaction product of (a) [isocyanates] a mixture of at least one polyphenylpolymethylene polyisocyanate and at least one isomer of diphenylmethane diisocyanate with (b) polyether polyalcohols, optionally in the presence of (c) catalysts and/or (d) auxiliaries and/or additives,
- (vi) 2-20 mm of metal.

3. (Amended) A composite element as claimed in claim 2, wherein (b) is a mixture comprising:

- (b1) from 40 to 98% by weight of polyether polyalcohol having a mean functionality of from 1.5 to 2.99 and a mean molecular weight of from 400 to 8000,
- (b2) from 1 to [60] 59% by weight of polyether polyalcohol having a mean functionality of from 3 to 5 and a mean molecular weight of from 150 to 8000 and
- (b3) from 1 to 50% by weight of at least one compound which is reactive toward isocyanates and has a hydrocarbon skeleton comprising from 10 to 40 carbon atoms and from 2 to 4 groups which are reactive toward isocyanates.

5. (Twice Amended) A composite element as claimed in claim 1, wherein layer (ii) has a modulus of elasticity of $[.] \geq 275$ MPa in the temperature range from -45 to $+50^{\circ}\text{C}$, an adhesion to layers (i) and (iii) of >4 MPa, an elongation of $>30\%$ in the temperature range from -45 to $+50^{\circ}\text{C}$, a tensile strength of >20 MPa and a compressive strength of >20 MPa.